The Use of Existing Prevention Methods for Contraception and Sexually Transmitted Infections and Interest in Microbicides Among Women in California

Bethany Young Holt, PhD MPH [1]
Maya Tholandi MPH [2]
Assunta Ritieni, MHS [2]
Joel M. Moskowitz, PhD [1]

[1] University of California Berkeley, Center for Family and Community Health
[2] California Department of Health Services, Office of AIDS

Report to Office of AIDS, California Department of Health Services. Sacramento, California. May 3, 2005.

Preparation of this manuscript was supported by the Center for Family and Community Health, School of Public Health, University of California, Berkeley through a contract from the Office of AIDS, California Department of Health Services (#00-91180) and a cooperative agreement from the Centers for Disease Control and Prevention (#U48/CCU909706).

Abstract

Sexually transmitted infections (STIs) and unplanned pregnancies pose significant risk to the reproductive health of women. HIV alone infects nearly 8,000 women a day worldwide. The HIV/AIDS pandemic has increased awareness about the need for protection against other STIs in concert with pregnancy prevention. However, to date the most effective contraceptive methods do not offer protection from STIs, and barrier methods, which do protect from STIs, are not the most effective forms of birth control. New methods, called microbicides, are in development, which could offer protection from STIs as well as pregnancy. The purpose of this study is to assess the use of existing methods for STI and pregnancy prevention among sexually active women in California and to explore their interest in microbicides. Study participants are sexually active women 18 years and older (N= 743) who participated in a random-digit-dial telephone survey in California. Our findings suggest that overall many women in California do not use condoms or spermicides for STI prevention, even with casual partners, and among those who do, many do not use these methods consistently. When prevention methods are used, they tend to be for pregnancy prevention versus for prevention of STIs. When queried about microbicides for STI and pregnancy prevention, 85% of women reported that there was a great need and 50% reported that they would be interested in using them. The findings suggest that if available, a broad spectrum microbicide that was affective against unwanted pregnancies and STIs would be appealing to many women.

Introduction

Unintended pregnancies and sexually transmitted infections (STIs), including HIV, represent a major health burden for sexually active individuals. The incidence of sexually-transmitted infections (STIs), including HIV, chlamydia, and gonorrhea, is increasing in many populations, particularly among young women and girls (UNAIDS, 2003; Centers for Disease Control and Prevention, 1999; California Department of Health , 2000.) In the United States, an estimated three million people are infected with chlamydia each year, and left untreated, these infections can progress to serious reproductive and other health problems.[3] Each year an estimated 15 million individuals in the United States contract an STI (Darroch & Frost, 1999). The HIV/AIDS pandemic continues its spread at a rate of over 15,000 new infections every day (D'Cruz & Uckun, 2004).

Worldwide, the vast majority of HIV infections are transmitted sexually. For the first time since the disease emerged in the early 1980's, about half of the 42 million people now living with HIV/AIDS worldwide are women. Although barrier methods are the only contraceptive methods recommended for STI/HIV prevention, they are less reliable than other forms of contraception for prevention of unintended pregnancies. The promotion of simultaneous protection against STIs and unintended pregnancy could represent an important public health intervention.

Microbicides are a new and innovative range of products being developed to prevent transmission of HIV and other STIs when applied topically. Some microbicides may also be contraceptive. Of the approximately 60 candidate microbicide products, roughly one-third are in some phase of clinical trials, but none is on the market (Harrison, Rosenberg, & Bowcut, 2003). Although nonoxynol-9, the most commonly used ingredient of spermicides in the United States, can kill HIV and other STIs *in vitro*, it can disrupt the vaginal epithelium and even facilitate HIV infection (Wilkinson, Tholandi, Ramjee, & Rutherford, 2002; Van Damme, Ramjee, Alary, Vuylsteke, Chandeying, Rees, Sirivongrangson, Mukenge-Tshibaka, Ettiegne-Traore, Uaheowitchai, Karim, Masse, Perriens, Laga M. & COL-1492 Study Group, 2002). Whatever the efficacy of a given microbicide candidate *in vitro* or *in vivo*, ultimate effectiveness will depend on its acceptability to users (Rockefeller, 2002).

To effectively prevent STIs and unintended pregnancies among sexually active women, it is important to determine what types of prevention methods women currently use and their potential interest in dual STI/pregnancy prevention methods, such as microbicides. The aims of this study, therefore, are to assess the use of existing methods for STI prevention among sexually active women in California and to explore their interest in microbicides.

Methods

This study was a population-based study examining HIV/AIDS knowledge, attitudes, beliefs and behaviors among California adults aged 18 and over; 1,739 adults participated in this random digit dial telephone survey, including 743 women who self reported sexual activity in the past 12 months (Moskowitz, Henneman, & Holt, 2002). Data from this subgroup are analyzed in this paper.

Under the supervision of the University of California Berkeley Center for Family and Community Health (CFCH), the Communication Sciences Group/Survey Methods Group conducted interviews between April and June 2000. Experienced interviewers conducted the interviews over a telephone using a computer-assisted telephone interview (CATI) system and directly coded responses into the computer data file. The interviews were conducted in either English or Spanish depending on the preference of the study participant, and on average, they lasted approximately 22 minutes. All participants were read a consent form approved by the Committees for the Protection of Human Subjects for the California Health and Human Services Agency and the University of California at Berkeley.

Sampling Design

A modified random-digit-dialing (RDD) sample was used. Four strata of roughly equal size were constructed: (1) Los Angeles County and surrounding Primary Metropolitan Statistical Areas (PMSAs), (2) San Diego and Orange Counties and adjacent PMSAs, (3) San Francisco Bay Area PMSAs and (4) the rest of the state of California (Non-Metro Stratum). To ensure generalizability of the survey results, a random sampling of 8,803 telephone numbers in California was performed; 3,697 were eliminated as confirmed non-households. All residential households with an individual over the age of 18 were considered eligible.

Each phone number was dialed during daytime, evening and weekend hours to maximize the likelihood of reaching someone at home. All active numbers were dialed until: 1) a final disposition was obtained, 2) 40 attempts were completed, or 3) until the fielding period concluded. An average of 11.25 call attempts were made to all numbers over a ten-week period. To minimize item non-response, a gender-matching question was used. If the respondent was a different sex than the interviewer, the interviewer asked the person if she/he would prefer being interviewed by someone of his or her own sex.

The American Association for Public Opinion Research (AAPOR) has developed standard formulas for calculating survey response rates. Using the standard formula where the eligibility of each sample unit is not known in advance, a 35% response rate for the survey was obtained. The cooperation rate, defined by the proportion of all known eligible households where a respondent was interviewed, was 69%.

Sample weights were developed to account for different probabilities of selection dependent on the number of phone lines, and number of eligible adults in a household.

Post-stratification weights, which incorporate the sampling weights, were then used to adjust the sample population to the 2000 projections provided by the California Department of Finance for sex, race/ethnicity and age groupings for California. (Moskowitz et al., 2002).

Survey Instrument

Where possible, questionnaire items were adapted from prior surveys. Survey items were subjected to pre-testing and expert review. After the questionnaire was finalized, the items were translated into Spanish and then back-translated into English using another translator. Prior to asking women about their interest in microbicides, interviewers read aloud a brief definition of microbicides. The wording used to describe microbicides was similar to that used in a prior microbicide acceptability telephone survey to facilitate comparison of study findings (Darroch et al., 1999). Women were asked to consider the need for microbicides.

"How great of a need, if any, do you think there is for these substances? Would you say there is no need for this at all, there is a small need, or there is a great need for these substances?"

Women were then asked to consider how interested they would be in microbicides:

"If such items were available, how interested would you be in using them? Would you say that you would not be interested at all, a little interested, or very interested?"

For a more detailed description of the 2000 HIV/AIDS KABB survey study, please refer to the report, 'California 2000 HIV/AIDS Knowledge, Attitudes, Beliefs and Behaviors (KABB) Survey: Methods and Results,' which is available on-line at the California Department of Health Services, Office of AIDS website (www.dhs.ca.gov/AIDS).

Statistical Analyses

Stata 7.0 was used for all statistical analyses due to the ability of Stata's survey procedures to handle the complex survey design. Multivariable logistic regression was performed to examine factors associated with women's interest in using a microbicide. For these analyses, women were considered interested in microbicide use if they responded that they were "very interested" in using a microbicide; such women were compared to those who responded that they were "somewhat interested" or "not interested at all." Variables included in the logistic regression were selected due to significance in initial univariate analysis (chi-square) or because they were considered relevant *a priori*. Selected sociodemographic variables were age (in years), race/ethnicity, household income, and education. The race/ethnicity variable was categorized as White, Hispanic, African American, and "other," where "other:" included those individuals who reported being Native American, Pacific Islander and Asian. The household income variable was defined as the median household income in the past year, and the education variable was defined as less than high school completion (i.e., no high

school diploma or GED), high school completion, some college education, and college graduate. The sociodemographic variables were assessed for pairwise correlation prior to their inclusion in the final logistic model. The pairwise correlations of the selected sociodemographic variables ranged from.13 to.31. Variance inflation factors (VIF) were calculated to assess multicollinearity among the independent sociodemographic variables. The predictor variables had VIF values near 1.0 suggesting that multicollinearity was not a problem.

Results

Sample Characteristics

Table 1 summarizes the sociodemographic characteristics of the sample of 743 women who participated in this survey. Overall, the majority of the study participants were White (56%), with 54% between 25-44 years of age. The women were well educated, with over half (55%) having had at least some college education. Women represented diverse annual household income levels ranging from less than $25,000 (24%) to over $100,000 (15%).

Condom and Spermicide Use

Overall, women in California use condoms and spermicides primarily for pregnancy prevention (54% and 52% respectively) and do not use either method consistently with their casual or steady sex partners. As shown in Table 2, 19% reported that they used a condom the last time they had sexual intercourse. Among the women who reported having a "casual" sex partner in the last 12 months, 37% reported using a condom every time, while 23% reported never using a condom. Among women who reported having a steady sex partner in the last 12 months, 9% reported they used a condom every time and 69% reported they never used a condom with their steady partners. Four percent of all women reported spermicide use at the time of last sexual intercourse and only 3% reported they had ever used the female condom.

The primary reason for using condoms or spermicides was for pregnancy prevention (Table 2). However, while few women reported using spermicides (9%) or condoms (2%) for STI prevention, 34% reported using spermicides and 26% reported using condoms for dual protection against STIs and pregnancy. Table 3 shows the relationship between the prevalence of condom use at last sex and potential correlates. Age, household income and spermicide use at last sex were found to be associated with condom use at last sex among sexually active women ($p < .001$).

Microbicide Need/Interest

When asked to consider the need for microbicides on a three-point scale, 85% of sexually active women responded that there was a great need for microbicides. Women were then asked to consider how interested they would be in using microbicides. Overall, 50% of women reported that they would have some interest in using a microbicide, with 30%

reporting that they would be very interested and 20% reporting that they would be a little interested (Table 4). Interest in microbicides varied by participant characteristics. Forty-four percent of Hispanics and 40% of women 18-24 years responded that they were very interested in microbicides. We also found that among women who reported using a condom at last sex, 35% were very interested in using a microbicide (not tabled). Not surprisingly, 55% of women who felt they were at medium to high risk of HIV infection were very interested in using a microbicide.

Based on univariate analyses and prior research (Darroch et al., 1999; Hardy, de Padua, Jimenez, & Zaneveld, 1998), race/ethnicity, age, education, income and perceived risk of becoming infected with HIV were included in the logistic regression model. Regression findings indicate greater interest in microbicides for Hispanics (OR = 2.06; 95% CI [1.22, 3.47]) and "other" (OR=2.68; 95% CI [1.03, 6.96]) race/ethnicity, and for individuals who considered themselves at medium to high risk for HIV infection (OR = 2.30; 95% CI [1.22, 4.36]). No other predictors were significant at the .05 level (Table 5).

Discussion

Consistent with the ongoing rates of STIs and unintended pregnancies, sexually active women in California are not using condoms or spermicides consistently and correctly. Our findings indicate that there is an interest in an alternative prevention option, namely microbicides. Based upon the stated reasons for using existing methods, the data also suggest that the most effective microbicide for women similar to those in this California sample would be a broad spectrum microbicide that offers protection from both pregnancy and STIs.

Ideally women should have a variety of options from which they can choose for the prevention of STIs and pregnancy. Studies have shown that contraceptive use is greatest in communities where women have multiple birth control options, such as the birth control pill, diaphragm or IUD (Cates & Steiner, 2002) Similarly, if women have multiple options from which to choose for STI prevention, it follows that more women may use some form of prevention.

As our study and others indicate, existing methods for the prevention of STIs, such as condoms and spermicides, are not widely used (Moore & Rogers, 2002; Farmer, Conners, Simmons, 1997). Increased efforts are thus needed both in the laboratory to develop new prevention products, and in the general population to educate women about their risks for STIs, and the currently available methods for prevention. Microbicides, when developed and on the market, will offer an alternative to existing methods for the prevention of sexually transmitted infection.

The concept of a microbicide is appealing to many women. Regardless of their knowledge of STIs and their intent to use protection, many women may have little power to negotiate sex with their partners. A female-controlled method would allow women to protect their own health. Among women with a perceived risk of HIV infection, the concept of a microbicide is especially appealing. Fifty-five percent of women, who

reported a medium to high perception of risk for HIV infection, reported being very interested in a microbicide and would potentially benefit from the availability of such a product. When adjusted for demographic characteristics, a medium to high level of perceived risk remained a significant predictor of microbicide interest.

For the development of microbicides to be worthwhile for the pharmaceutical industry there needs to be a lucrative market for these products. In our study, half of sexually active women were interested in using a microbicide. This corresponds to about 4.5 million women in California who are potentially interested in using microbicides. These findings are consistent with those of a previous study (Darroch et al., 1999), which indicated that about 40% of women in the U.S. are interested in using microbicides.

Although women in all social and demographic subgroups indicated some interest in using a microbicide, we found that Hispanic women 18 years and over were very interested in using microbicides, a population that has increased from 21% of California's population in 1990 to 27% in 2000. The social and economic diversity of the population within California, coupled with the growing Hispanic population in the state (United States Census, 2000), suggests that the market potential for microbicides could be even larger once a product becomes available. It is important to recognize, that many sexually active adult women in California are in long-term, monogamous relationships and have little risk of STIs and some, are in fact, trying to get pregnant. Thus, the likely microbicide users in California will be those who currently use some method of contraception.

It should also be noted that population-based telephone surveys on sensitive topics have limitations. Surveys that address sensitive topics such as HIV/AIDS may introduce sample bias as well as response bias. Furthermore, although they are intended to capture information from the general public, these types of surveys will only capture those individual households that have telephones. Therefore, findings from these types of studies may only be generalizable to the population that has a functional telephone at the time of the survey. The overall response rate (35%) for this study was comparable to that obtained in other statewide surveys, (i.e. the 2000 California Health Interview Survey and the 1999 California Tobacco Survey). Despite the limitations of this study, the data indicate that a microbicide that was effective for both pregnancy and STI prevention is appealing to a wide array of women in California and thus could offer a "one stop shopping" prevention option for women.

Acknowledgements

The authors would like to thank the following individuals for their useful input into the preparation and review of this manuscript: Dr. Long Ngo and Biao Xing, of the University of California Berkeley, School of Public Health, Dr. Tanya Henneman of the University of California at Los Angeles, Dr. Polly Harrison of the Alliance for Microbicide Development, and Dr. Juan Ruiz of the California Department of Health Services, Office of AIDS.

References

Cates, W. Jr., & Steiner, M.J. (2002). Dual protection against unintended pregnancy and sexually transmitted infections: what is the best contraceptive approach? *Sexually Transmitted Diseases,* 29,168-74.

Centers for Disease Control and Prevention. *HIV/AIDS Surveillance Report*. Atlanta, G GA;11: 1999.

California Department of Health Services. *Sexually-transmitted Disease Surveillance Report*. Sacramento, CA; 2000.

Farmer, P. (Ed), Conners, M., & Simmons, J. (1997). *Women, Poverty and AIDS: Sex, Drugs, and Structural Violence*, Monroe, Maine: Common Courage Press.

Darroch, J.E., & Frost, J.J. (1999). Women's interest in vaginal microbicides. *Family Planning Perspectives,* January-February, 31(1), 16-23.

D'Cruz, O.J., & Uckun, F.M. (2004). Clinical development of microbicides for the prevention of HIV infection. *Current Pharmaceutical Design*, 10(3), 315-36.

Hardy E., de Padua K.S., Jimenez A.L., & Zaneveld L.J. (1998). Women's preferences for vaginal antimicrobial contraceptives I. methodology, *Contraception* 58, 233-238.

Harrison P.F., Rosenberg Z., & Bowcut J. (2003). Topical microbicides for disease prevention: status and challenges. *Clinical Infectious Diseases,* 36,1290-4.

Moore J. & Rogers M. (2002). In: A. O'Leary (Ed), *Beyond Condoms: Alternative Approaches to HIV Prevention.* New York: Kluwer Academic.

Moskowitz J., Henneman T., & Holt B.Y. (2002). California 2000 HIV/AIDS Knowledge, Attitudes, Beliefs and Behaviors (KABB) Survey: Methods and Results, Office of AIDS. California Department of Health Services.

The Rockefeller Foundation (2002). The economics of microbicide development: A case for investment. *Microbicide Inititative Pharmaco-Economics Working Group*. New York: Rockerfeller Foundation.

UNAIDS, 2003. AIDS Epidemic Update. December 2003. UNAIDS/03.39E. Geneva: UNAIDS.

United States Census (2000). www.census.gov.

Van Damme L., Ramjee G., Alary M., Vuylsteke B., Chandeying V., Rees H., Sirivongrangson P., Mukenge-Tshibaka L., Ettiegne-Traore V., Uaheowitchai C., Karim S.S., Masse B., Perriens J., Laga M. & COL-1492 Study Group. (2002). Effectiveness of COL-1492, a nonoxynol-9 vaginal gel, on HIV-1 transmission in female sex workers: a randomized controlled trial. *Lancet*. 360, 971-77.

Wilkinson D., Tholandi M., Ramjee G., & Rutherford G.W. (2002). Nonoxynol-9 spermicide for prevention of vaginally acquired HIV and other sexually transmitted infections: a systematic review and meta-analysis of randomized controlled trials including over 5000 women. *Lancet Infectious Diseases*, 2, 613 617.

Table 1. Sample Characteristics of Sexually Active Women (unweighted)		
Characteristic	**%**	**(95% CI)**
Race/ethnicity		
White	56.3	(52.6, 59.9)
Hispanic	30.6	(27.3, 34.0)
African American	6.7	(5.0, 8.8)
Other	6.5	(4.8, 8.5)
Age* (years)		
18-24	16.1	(13.5, 18.9)
25-34	29.0	(25.8, 32.4)
35-44	25.1	(22.0, 28.4)
45-54	18.5	(15.8, 21.5)
$\geq$ 55	11.3	(9.14, 13.8)
Education		
Less than High School	15.1	(12.6, 17.9)
High School Graduate	29.7	(26.5, 33.2)
Some College	28.7	(25.4, 32.1)
College Graduate	26.5	(23.4, 29.8)
Household Income ($)		
< 25,000	23.7	(20.7, 26.9)
25,000-49,999	27.3	(24.1, 30.7)
50,000-99,999	26.4	(23.2, 29.7)
$\geq$ 100,000	15.2	(12.7, 18.0)
Missing	7.4	(5.6, 9.5)
Number of Sexual Partners in Previous 12 Months		
1	90.0	(87.7, 92.1)
$\geq$ 2	10.0	(7.90, 12.3)

**Sample size equals 743 for all characteristics, but "age" where N=741*

Table 2. Methods of STI and Pregnancy Prevention Used By Sexually Active Women In California

Characteristic	%	(95% CI)
Used condom at last sex *N=733	19.4	(16.2, 22.5)
Used condom with casual partner in last 12 months N=59		
Every time	36.5	(22.0, 50.9)
Most every time	24.3	(8.2, 40.5)
Sometimes	15.9	(6.1, 25.7)
Never	23.3	(10.6, 36.0)
Used condom with steady partner in last 12 months N=711		
Every time	9.2	(7.1, 11.4)
Most every time	7.9	(5.4, 10.4)
Sometimes	13.8	(10.9, 16.7)
Never	69.1	(65.1, 73.0)
Reason for condom use N=165		
Pregnancy Prevention	54.4	(45.7, 63.1)
STI Prevention	8.6	(4.0, 13.3)
Both Pregnancy and STI Prevention	33.7	(25.8, 41.6)
Other	3.2	(0.3, 6.1)
Used spermicide at last sex N=678	4.2	(2.8, 5.6)
Reason for spermicide use N=40		
Pregnancy Prevention	52.4	(35.2, 69.6)
STI Prevention	2.1	(0, 6.2)
Both Pregnancy and STI Prevention	26.1	(12.3, 40.0)
Other	19.3	(3.4, 35.3)
Ever used the female condom N=655	3.4	(1.9, 4.9)

*N's indicates number of respondents

Table 3. Prevalence of Condom Use At Last Sex by Selected Correlates Among Sexually Active Women In California

Characteristic	%	(95% CI)
Race/ethnicity		
***N=733**		
White	17.6	(14.0, 21.9)
Hispanic	22.2	(16.9, 28.5)
African American	23.9	(14.1, 37.5)
Other	18.4	(9.0, 33.9)
Age (years)		
N=731		
18-24	39.5	(30.1, 49.7)
25-34	24.1	(18.2, 31.3)
35-44	23.4	(17.1, 31.1)
45-55	6.7	(3.6, 12.3)
$\geq$ 55	3.6	(1.4, 8.7)
Education		
N=733		
Less than 12 years	20.9	(14.1, 29.9)
High School Graduate	22.5	(17.1, 29.0)
Some College	14.2	(9.8, 20.1)
College Graduate	21.1	(14.9, 29.0)
Income ($)		
N=733		
<25,000	26.2	(19.8, 33.9)
25,000-49,000	27.7	(20.7, 35.9)
50,000-99,000	13.6	(9.3, 19.4)
$\geq$ 100,000	11.9	(6.8, 20.1)
Missing	12.9	(6.0, 25.5)
Perceived risk of HIV infection		
N=725		
None	17.7	(13.7, 22.5)
Low	19.9	(15.1, 25.8)
Medium/High	24.2	(15.9, 35.1)
Spermicide use at last sex		
N=675		
Yes	57.2	(40.0, 72.8)
No	19.8	(16.5, 23.5)

*N's indicates number of respondents

Table 4. Interest in Microbicide Use By Selected Characteristics

Characteristic		Not interested % (95% CI)	A Little Interested % (95% CI)	Very Interested % (95% CI)
All sexually active women		50.5 (46.0, 55.0)	19.9 (16.4, 23.5)	29.6 (25.3, 33.8)
Race/ethnicity				
N=730	White	66.7 (61.7, 71.4)	13.0 (9.9, 16.9)	20.3 (16.6, 24.6)
	Hispanic	25.4 (19.5, 32.3)	30.8 (24.5, 37.9)	43.9 (36.6, 51.4)
	African American	44.6 (29.9, 60.3)	24.5 (12.5, 42.4)	30.9 (19.1, 45.9)
	Other	35.6 (19.7, 55.4)	25.2 (12.4, 44.5)	39.3 (22.0, 59.7)
Age (years)				
N=728	18-24	23.5 (16.1, 32.8)	36.4 (27.0, 47.1)	40.1 (30.7, 50.3)
	25-34	46.6 (38.8, 54.5)	19.2 (14.2, 25.6)	34.2 (27.2, 42.0)
	35-44	55.9 (47.1, 64.3)	17.2 (11.6, 24.7)	27.0 (19.6, 35.8)
	45-54	52.5 (40.8, 63.9)	15.7 (9.2, 25.5)	31.9 (21.5, 44.4)
	$\geq$ 55	67.2 (52.8, 78.9)	17.3 (8.6, 31.8)	15.5 (7.5, 29.4)
Education				
N=730	Less than 12 years	27.9 (19.1, 38.8)	28.8 (20.1, 39.3)	43.4 (33.2, 54.2)
	High School Graduate	47.8 (39.5, 56.2)	18.5 (13.2, 25.3)	33.7 (26.5, 41.7)
	Some College	55.7 (46.9, 64.1)	19.4 (13.4, 27.3)	24.9 (17.6, 34.0)
	College Graduate	60.7 (51.6, 69.1)	16.9 (11.1, 24.8)	22.5 (15.5, 31.4)
Income ($)				
N=730	<25,000	24.4 (18.0, 32.1)	30.2 (23.1, 38.4)	45.5 (37.0, 54.2)
	25,000-49,000	38.4 (30.6, 46.8)	28.7 (20.6, 38.3)	33.0 (25.6, 41.3)
	50,000-99,999	64.4 (55.7, 72.3)	10.9 (6.8, 16.8)	24.7 (17.8, 33.3)
	$\geq$ 100,000	66.9 (53.3, 78.2)	11.1 (6.2, 18.9)	22.0 (11.7, 37.6)
	Missing	68.4 (52.8, 80.7)	18.5 (9.3, 33.5)	13.1 (5.8, 26.9)
Chances of getting infected with HIV N=721				
	None	59.6 (52.8, 66.0)	13.7 (9.6, 19.1)	26.7 (20.9, 33.5)
	Low	46.8 (39.6, 54.0)	26.5 (20.6, 33.4)	26.7 (21.1, 33.2)
	Medium/High	23.4 (13.9, 36.6)	22.0 (14.2, 32.4)	54.7 (42.0, 66.8)

Table 5. Factors Associated with Microbicide Interest* Among Sexually Active Women In California (N=721)

Characteristic	Crude Odds Ratio** (95% CI)	Adjusted Odds Ratio*** (95% CI)
Race/ethnicity		
White	1	1
Hispanic	3.21 (2.16, 4.77)	2.06 (1.22, 3.47)
African American	1.75 (0.88, 3.48)	1.55 (0.77, 3.11)
Other	2.53 (1.07, 6.01)	2.68 (1.03, 6.96)
Age (years)		
18-24	3.65 (1.46, 9.16)	2.38 (0.95, 6.01)
25-34	2.83 (1.17, 6.85)	1.87 (0.76, 4.61)
35-44	2.00 (.80, 5.01)	1.45 (0.57, 3.68)
45-55	2.55 (0.96, 6.80)	2.01 (0.76, 5.29)
$\geq$ 55	1	1
Education		
Less than 12 years	2.82 (1.48, 5.36)	1.37 (0.62, 3.01)
High School Graduate	1.81 (1.02, 3.24)	1.24 (0.63, 2.41)
Some College	1.17 (0.62, 2.23)	0.98 (0.50, 1.90)
College Graduate	1	1
Income ($)		
<$25,000	1	1
$25-$49,000	0.57 (0.35,0.95)	0.87 (0.50, 1.51)
$50-$99,000	0.37 (0.22, 0.65)	0.68 (0.36, 1.31)
$\geq$ $100,000	0.32 (0.14, 0.74)	0.57 (0.26, 1.27)
missing	0.16 (0.06, 0.44)	0.21 (0.08, 0.59)
Chances of getting infected with HIV		
None	1	1
Low	1.01 (0.64, 1.58)	0.98 (0.61, 1.58)
Medium/High	3.33 (1.82, 6.10)	2.30 (1.22, 4.36)